## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : **09/975,382**
Applicant(s) : **van der VLEUTEN et al.**
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Examiner : **PATEL, Nirav B.**
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Commissioner for Patents
Alexandria, VA 22313-1450

## REQUEST FOR REHEARING UNDER 37 CFR 41.52

Sir:

The applicants respectfully request the Board's reconsideration of the Decision of 24 February 2010, affirming the Examiner's rejection of all claims.

## RESTATEMENT OF GROUNDS OF REJECTION

Claims 1-3, 5-7, 9-11, 13-16, and 18-19 stand rejected under 35 U.S.C. 103(a) over Park et al. (USP 6,148,288, hereinafter Park), Nishiwaki et al. (USP 5,892,848, hereinafter Nishiwaki), and Simon et al. (USP 4,918,523, hereinafter Simon).

Claim 4 stands rejected under 35 U.S.C. 103(a) over Park, Nishiwaki, Simon, and Shin et al. (USP 6,493,387, hereinafter Shin).

Claim 8 stands rejected under 35 U.S.C. 103(a) over Park, Nishiwaki, Simon, and Girod et al. (USP 5,809,139, hereinafter Girod).

Claims 12 and 17 stand rejected under 35 U.S.C. 103(a) over Park and Nishiwaki.

## REMARKS

### Claims 1-11, 13-16, and 18-19

The applicants believe that the Board has misapprehended or overlooked a key element in the applicants' claims; in particular, the Board has misapprehended or overlooked the fact that the applicants claim generating quality information which indicates ***distortion of an object when the bit-stream is truncated during decoding***.

As stated in the applicants' Brief:

> "As taught by the applicant, the distortion of an object when a bit stream is truncated is dependent upon the differential rate-distortion curve for each different object (Applicants' page 2, lines 26-34). As is well known in the art, given the same encoding parameters, including the same quantization step size, different objects will experience different amounts of distortion. Given the same quantization step size, a plain object or scene will exhibit substantially less distortion than a complex object or scene. ***Knowledge of the quantization step size is insufficient to determine or estimate distortion of an object when a bit-stream is truncated during decoding***." (Brief, page 10, lines 5-12, emphasis added.)

Throughout the Decision, the Board refers to distortions that are produced by quantization, yet these distortions are not the distortions that the applicants' claims address. The applicants specifically claim the inclusion of quality information that indicates the distortion produced when the ***bit-stream is truncated***.

Not all distortions are equivalent, and in particular, the distortions produced by quantization are not at all related to the distortions produced by truncation of the bit-stream. As taught by the applicants and noted in the applicants' Brief, the distortions produced by truncation during decoding cannot be determined based on the parameters used to encode an object, because the distortions that will be produced by truncation are dependent upon the particular characteristics (rate-distortion curve) of the object being encoded. That is, even if the decoder were provided all of the parameters used for encoding the object, including the quantization parameters, it would be ***impossible*** to determine the distortion that a truncation of the bit-stream during decoding would produce. Accordingly, the inclusion of the encoding parameters, such as the quantization step size cannot be said to correspond to

quality information that indicates the distortion of an object when the bit-stream is truncated during decoding, as specifically claimed by the applicants.

As is well known in the art, an important characteristic of all encoding-decoding schemes is the presentation of uniform quality. That is, a presentation of an image, or sound, that varies in quality will be more noticeable/objectionable than a presentation of the image or sound at a uniform quality level. Consider, for example, a rendering of a program wherein some frames are rendered as HD (High-definition) images and some frames are rendered as non-HD images, compared to rendering that same program consistently using the non-HD images. Such a variation in quality, from HD to non-HD, will definitely be more noticeable and/or objectionable than merely viewing the program at a uniform (albeit non-HD) quality level. In like manner, consider a rendering of a song with parts that are rendered in stereo and parts that are rendered in monaural, compared to a uniform monaural rendering.

As specifically noted in the applicants' Brief:

> "Using Park's quantization step-size information as a measure of distortion will not provide substantially uniform quality, because each object's differential rate-distortion curve will determine the distortion that will occur when the quantization-step-size truncated bit stream is decoded. If, as suggested in the Office action, Park's quantization step-size information is used to select when truncation will occur, then when the truncated video or audio content material is rendered, complex images or sounds will be substantially more distorted than plain images or sounds, and will be generally unsatisfactory for the intended purpose of providing substantially uniform quality." (Brief page 10, last paragraph.)

If, as the Examiner proposes, Park's quantization parameter is [mistakenly] used as an indicator of the distortion that will be produced by truncation, a decoder that relies on this quantization parameter to determine whether to truncate the bitstream for each object will definitely produce varying quality levels for typical source material, such as songs and video recordings, and will thus be unsuitable for its intended purpose of providing acceptable audio or video reproductions.

The Decision notes that the applicants did not specifically address the Examiner's reliance on Simon "for at least suggesting truncating the bitstream to obtain a desired bit-rate and distortion". The applicants note that "truncating a bitstream to obtain a desired bit-rate and distortion" is not equivalent to providing, a priori, "information which indicates distortion of the object when the bit-stream is truncated during decoding", as claimed by the applicants. The applicants respectfully maintain that the Decision's statement regarding Simon ignores the fact that, as both the Examiner and the Board acknowledges, Simon's distortion is the distortion caused by quantization, not the distortion caused by truncation:

> "Therefore, Simon teaches that the quality information (quantization information) is associated with the bitstream truncation during the decoding" (Examiner's Answer, page 15, lines 12-14).

The applicants' Brief repeatedly notes that quantization information is insufficient to indicate the distortion that will be produced by truncation, and neither the Examiner nor the Board has disputed this fact. The Brief states:

> "Neither Park, nor Nishiwaki, nor Simon, individually or collectively, teaches or suggests generating quality information that indicates distortion of the object when a bit-stream is truncated during decoding" (Brief, page 9, lines 14-16).

Having presented this premise, the Brief explains why the use of quantization information in the proposed combination of Park, Nishiwaki, and Simon does not, and cannot indicate the distortion of the object when a bit-stream is truncated. The applicants note that it is well established that an obviousness rejection cannot be overcome by arguing the references individually, and the Examiner does not assert that Simon specifically teaches that the quantization information indicates the distortion of the object when a bit-stream is truncated, as claimed. The applicants' clearly stated position is that ***any*** encoding-decoding scheme that would use the quantization information as indicative of the distortion of an object when the bit-stream is truncated, as proposed by the Examiner's combination of Park, Nishiwaki, and Simon, would not produce an acceptable rendering of typical encoded material, such as songs and video recordings.

Because the Board has apparently overlooked or misapprehended the significance of the differences between types of distortions, and has apparently mistakenly assumed that the quantization parameter is related to the distortion of an object that is produced by truncating an encoded bitstream, the applicants respectfully request that the Board reconsider their Decision with regard to the clearly erroneous use of Park's quantization parameters as an indicator of the distortion produced by truncation, as proposed by the Examiner.

**Claims 12 and 17**

The applicants respectfully maintain that the Board has misapprehended or overlooked the fact that, in the rejection of claims 12 and 17, the Examiner fails to identify where the combination of Park and Nishiwaki teaches the specific elements of these claims.

Claim 12 claims a method that includes receiving quality information indicating distortion of the object in relation to a given position in the bit-stream upon a truncation, and processing the multi-media object in dependence on the extracted quality information. Claim 17 includes similar features.

As noted in the applicants' Brief, in the final Office action the Examiner asserts that Park provides this teaching at column 4, lines 50-55:

> "restoring the decoded quantization step size and quantized data into signals having the original magnitudes; and converting inversely quantized signals into signals of a temporal domain." (Park, column 4, lines 50-55.)

As pointed out in the Brief, the cited text fails to address receiving quality information indicating distortion of the object in relation to a given position in the bit-stream upon a truncation. The cited text does no address truncation, and cannot reasonably be said to teach receiving quality information indicating distortion of the object in relation to a given position in the bit-stream upon a truncation, and processing the multi-media object in dependence on the extracted quality information, as asserted by the Examiner.

In response to the applicants' indication of this clear error on the part of the Examiner, the Examiner's Answer states:

> "Examiner disagree [sic] with Applicant's argument, since as discussed in regarding [sic] to claim 1, Park teaches the claim limitation "the quality information indicating distortion of the object…"[1]

As is clearly evident, the Examiner's Answer does not address the fact that the cited text of Park does not teach or suggest the limitations of claims 12 and 17, since claim 1 addresses the encoding of the objects and does not address receiving quality information indicating distortion of the object in relation to a given position in the bit-stream upon a truncation, and processing the multi-media object in dependence on the extracted quality information.

In support of the Examiner's rejection, the Decision states:

> "We agree with the Examiner's analysis of Park… and find no error in the Examiner's reasoning (Ans. 14) that Park at least suggests
> (1) extracting quality information from coded parts of the bitstream, and
> (2) processing a multimedia object in dependence on the extracted quality information as part of its decoding process". (Decision, page 9, "ANALYSIS")

The applicants note, however, that the first of these two suggestions has no bearing on the Board's stated issue as to whether Park and Nishiwaki collectively teach:

> "(1) receiving quality information <u>indicating object distortions in relation to a given position in the bitstream upon truncation</u>, and
> (2) processing the multimedia object in dependence upon the extracted quality information". (Decision, pages 8-9, "ISSUE".)

The Decision overlooks or misapprehends the issue raised by the applicants that the Examiner's reference to Park fails to teach or suggest the claimed element of receiving quality information <u>indicating object distortions in relation to a given position in the bitstream upon truncation</u>. Accordingly, the applicants respectfully request the Board's reconsideration of these rejections.

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1 The applicants respectfully suggest that it is significant to note that the Examiner truncated the cited claim language to avoid the inclusion of "distortion of the object… <u>upon a truncation</u>". It is also significant to note that at page 4 of the Examiner's Answer, the Examiner acknowledges that "Park <u>doesn't</u> expressly mention the quantization information (i.e. quality information) is associated with the <u>bitstream truncation</u> during the decoding."

## CONCLUSIONS

Because the Board has apparently overlooked or misapprehended the claimed limitation of quality information that indicates distortion of the object when the bit-stream is truncated during decoding, and because the combination of Park, Nishiwaki, and Simon fails to teach or suggest providing information that is indicative of the distortion caused by truncation, and because the distortion caused by quantization is unrelated to and does not indicate the distortion caused by truncation, and because the Examiner's proposed combination of Park, Nishiwaki, and Simon will be unsuitable for its intended purpose, the applicants respectfully request that the Board reconsider their decision to affirm the Examiner's decision rejecting claims 1-19.

Because the Board has apparently overlooked or misapprehended the fact that the Examiner has failed to identify where the combination of Park and Nishiwaki teaches or suggests receiving quality information indicating object distortions in relation to a given position in the bitstream upon truncation, the applicants respectfully request that the Board reconsider their decision to affirm the Examiner's decision rejecting claims 12 and 17.

Respectfully submitted,

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